

**REMARKS**

Claims 1 through 4, 6 through 10, 12 and 14 through 26 are pending in this Application of which claims 8, 10 and 17 through 22 stand withdrawn from consideration pursuant to the provisions of 37 C.F.R. § 1.142(b). Accordingly, claims 1 through 4, 6, 7, 9, 12, 14 through 16 and 23 through 26 are active.

Independent claims 1 and 26 have been amended. Care has been exercised to avoid the introduction of new matter. Adequate descriptive support for the present Amendment should be apparent throughout the originally filed disclosure, noting the illustrative embodiments and related discussion thereof in the written description of the specification. Applicants submit that the present Amendment does not generate any new matter issue.

**Drawing Objection.**

The Examiner objected to the drawings pursuant to 37 C.F.R. § 1.83(a), asserting that the claim feature requiring the second optical guide layer to have a small thickness than the first optical guide layer is not illustrated. This objection is traversed.

The Examiner's attention is invited to Fig. 20, layer 64, and to page 46 of the written description of the specification, lines 18 through 25. Based upon the foregoing, noting particularly Fig. 20, Applicants submit that the imposed objection is not factually viable and, hence, solicit withdrawal thereof.

**Claims 1 through 4, 6, 7, 9, 12, 14 through 16, and 23 through 26 were rejected under 35 U.S.C. § 103 for obviousness predicated upon Nagahama et al. in view of Tanizawa et al.**

In the statement of the rejection the Examiner identified wherein features of the claimed invention were asserted to reside in Fig. 2 of Nagahama et al., but admitted that Nagahama et al. do not disclose a contact layer which is undoped and has a thickness corresponding to that required by the claimed invention. The Examiner then asserted that Tanizawa et al., disclosure layer 208a an undoped contact layer having a thickness as in the claimed invention. The Examiner then concluded that one having ordinary skill in the art would have been motivated to modify the device disclosed by Nagahama et al. by forming the contact layer as undoped and having "... the specified thickness since that would prevent generation of fine cracks as taught by Nagahama" (first full paragraph on page 4 of the June 5, 2006 Office Action). This rejection is traversed.

There are several differences between the claimed invention and the applied prior art that undermine the obviousness conclusion under 35 U.S.C. § 103. This is because that even if the applied references are combined as proposed by the Examiner, and Applicants do not agree that the requisite fact-based motivation has been established, the claimed invention would not result. *Uniroyal, Inc. v. Rudkin-Wiley Corp.*, 837 F.2d 1044, 5 USPQ2d 1434 (Fed. Cir. 1988).

Initially, Applicants would again stress that in paragraphs [0199] and [0202] of Tanizawa et al. it is disclosed that the undoped contact layer 208 is formed on a p-type layer 208b having a thickness of not greater than 100 Å (0.01 μm). This structure is dramatically different from that encompassed by the claimed inventions, which require the second nitride-based semiconductor layer to have a thickness of at least 0.1 μm.

Moreover, not that Applicants consider it necessary, independent claims 1 and 26 have been amended, thereby further distinguishing over the applied prior art. Indeed, in accordance with the claimed inventions, even when an undoped contact layer is employed, excellent contact is obtained between the undoped contact layer and the electrode. On the other hand, in Fig. 2 of Nagahama et al., a laser device having a p-side contact layer 20 and a p-side electrode 21 on a p-side cladding layer 19 having a super lattice structure is illustrated. However, the p-side cladding layer of Nagahama et al. has **no single layer structure** having a thickness of at least 0.1  $\mu\text{m}$ .

Further, Nagahama et al. neither disclose nor suggest that the undoped contact layer is formed on the p-type cladding layer without another intervening second conductivity type layer having a thickness of less than 0.1  $\mu\text{m}$  therebetween. Nor do Nagahama et al. disclose that the electrode is directly formed on the undoped contact layer, at a thickness of the undoped contact layer as in the claimed invention.

Tanizawa et al. do not cure the above argued deficiencies of Nagahama et al. Indeed, Tanizawa et al. disclose a p-contact layer 208 consisting of an underlayer structure, of a p-type layer and an undoped layer (Fig. 5). However, Tanizawa et al. neither disclose nor suggest that the undoped contact layer is formed directly on the second nitride-based semiconductor layer having a single layer structure with a thickness of at least 0.1  $\mu\text{m}$  without an intervening other second conductivity type layer with a thickness of less than 0.1  $\mu\text{m}$  therebetween.

Based upon the foregoing it should be apparent that even if the applied references are combined as proposed by the Examiner, and again Applicants do not agree that the requisite fact-based motivation has been established, the claimed invention would not result. *Uniroyal, Inc. v.*

*Rudkin-Wiley Corp., supra.* Moreover, Applicants strenuously argue that the requisite fact-based realistic motivation has not been established.

In order to establish the requisite fact-based realistic motivation, the Examiner must make clear and particular factual findings as to a specific understanding or specific technological principle and then, based upon such factual findings, explain **why** one having ordinary skill in the art would have been realistically motivated to modify particular prior art, in this case the particular device disclosed by Nagahama et al., to arrive at the claimed invention. *In re Lee*, 237 F.3d 1338, 61 USPQ2d 1430 (Fed. Cir. 2002); *Ecolchem Inc. v. Southern California Edison, Co.*, 227 F.3d 1361, 56 USPQ2d 1065 (Fed. Cir. 2000); *In re Kotzab*, 217 F.3d 1365, 55 USPQ 1313 (Fed. Cir. 2000); *In re Dembiczak*, 175 F.3d 994, 50 USPQ2d 1614 (Fed. Cir. 1999); *In re Rouffet*, 149 F.3d 1350, 47 USPQ2d 1453 (Fed. Cir. 1998). That burden has not been discharged.

Indeed, the Examiner **did not**, repeat **did not**, identify wherein Nagahama et al., who doesn't even disclose an undoped contact layer, or Tanizawa et al., **link** the undoped feature and the thickness of the contact layer to the prevention of fine cracks, as asserted by the Examiner. Accordingly, the Examiner did not discharge the initial burden by explaining **why** one having ordinary skill in the art would have been realistically motivated to modify the device of Nagahama et al. to arrive at the claimed invention, let alone with a reasonable expectation of success. *Velander v. Garner*, 348 F.3d 1359, 68 USPQ2d 1769 (Fed. Cir. 2003); *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991).

Furthermore, the Examiner asserted that one having ordinary skill in the art would have been motivated to optimize the thickness of the undoped contact layer. Firstly, Nagahama et al. do not even disclose an undoped contact layer. Secondly, the Examiner did not identify, as

judicially required, wherein either of the applied references discloses or suggests that the thickness of the undoped contact layer is an art-recognized **result effective variable** which begs optimization. Accordingly, it is legally erroneous to conclude that one having ordinary skill in the art would have been motivated to vary or optimize the thickness of an undoped contact layer (which is not even in the device of Nagahama et al.), to achieve any particular objective. *In re Rijckaert*, 9 F.3d 1531, 28 USPQ2d 1955 (Fed. Cir. 1993); *In re Yates*, 663 F.2d 1054, 211 USPQ 1149 (CCPA 1981); *In re Antonie*, 559 F.2d 618, 195 USPQ 6 (CCPA 1977).

Based upon the foregoing it should be apparent that a *prima facie* basis to deny patentability to the claimed invention has not been established for lack of the requisite factual basis and want of the requisite realistic motivation. Applicants, therefore, submit that the imposed rejection of claims 1 through 4, 6, 7, 9, 12, 14 through 16, and 23 through 26 under 35 U.S.C. § 103 for obviousness predicated upon Nagahama et al. in view of Tanizawa et al. is not factually or legally viable and, hence, solicit withdrawal thereof.

To the extent necessary, a petition for an extension of time under 37 C.F.R. 1.136 is hereby made. Please charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, to Deposit Account 500417 and please credit any excess fees to such deposit account.

**Application No.: 10/663,714**

Respectfully submitted,

McDERMOTT WILL & EMERY LLP

*Bar H. Steiner Reg. No. 51,321*  
Arthur J. Steiner  
Registration No. 26,106

600 13<sup>th</sup> Street, N.W.  
Washington, DC 20005-3096  
Phone: 202.756.8000 AJS:bjs:ntb  
Facsimile: 202.756.8087  
Date: **August 15, 2006**

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as our correspondence address.**